

Amendments to the Claims:

Please amend claims 2, 4, 5, 7-19, 21, 22, 28, 50-52, 55, 57-60, and 79-84, and cancel claims 1, 3, 6, 23-27, 29-31, 33, 34, 49, 56, 72-75, 78, and 85-87. Following is a complete listing of the claims pending in the application, as amended:

1. (Cancelled)

2. (Currently amended) The method of claim 49, further comprising:
selecting the planarizing pad material to have a thickness of from about 0.002 inch to
about 0.010 inch; and
forming the recesses in the surface of the planarizing pad material to have a depth of from
about 0.001 inch to about 0.004 inch measured from the surface of the planarizing
pad material.

3. (Cancelled)

4. (Currently amended) The method of claim 49, further comprising selecting the
first portion of the surface of the planarizing pad material to include a plurality of uniformly
spaced regions.

5. (Currently amended) The method of claim 49, further comprising selecting the
first portion of the surface of the planarizing pad material to include a plurality of randomly
spaced regions.

6. (Cancelled)

7. (Currently amended) The method of claim 69, further comprising selecting the
substrate material to include polyester.

8. (Currently amended) The method of claim 69, further comprising selecting the substrate material to have a thickness of from about 0.001 inch to about 0.010 inch.

9. (Currently amended) A method for forming a planarizing pad for planarizing a microelectronic substrate, comprising: ~~The method of claim 1 wherein the surface of the planarizing pad material is a first surface, the planarizing pad material having a second surface opposite the first surface, further comprising:~~

selectively exposing a first portion of a first surface of an energy-sensitive planarizing pad material to a selected energy source without exposing a second portion of the first surface facing in generally the same direction as the first portion and adjacent to the first portion, the energy-sensitive planarizing pad material including fixed abrasive elements for abrading the microelectronic substrate;

forming a plurality of recesses and contact surfaces at the first surface of the planarizing pad material configured to support a planarizing liquid proximate to the first surface of the planarizing pad material during planarization of the microelectronic substrate by exposing the planarizing pad material to a solvent to remove material from one of the first and second portions of the planarizing pad material at a greater rate than removing material from the other of the first and second portions;

selecting a substrate material to transmit a selected radiation from the energy source;

attaching the substrate material to the a second surface of the planarizing pad material to support the planarizing pad material, the second surface facing opposite from the first surface; and

exposing the second surface to the selected radiation to cure the planarizing pad material to a selected depth beneath from the second surface by irradiating the substrate material with the selected radiation and passing the selected radiation through the substrate material to the second surface of the planarizing pad material.

10. (Currently amended) The method of claim 1-9 wherein the planarizing pad material has a protective film adjacent to the surface of the planarizing pad material, further comprising removing the protective film after exposing the planarizing pad material to the energy source and before exposing the planarizing pad material to the solvent.

11. (Currently amended) The method of claim 49, further comprising curing the planarizing pad material at an elevated temperature to strengthen and harden the planarizing pad material.

12. (Currently amended) The method of claim 49 wherein exposing the planarizing pad material to the selected energy source includes exposing the planarizing pad material to ultraviolet radiation.

13. (Currently amended) The method of claim 49, further comprising selecting the solvent from nonyl acetate and benzyl alcohol.

14. (Currently amended) The method of claim 49 wherein the substrate material is a first substrate material, and wherein the method, further comprising:

attaching the planarizing pad material to an elongated second substrate material to form an elongated planarizing pad; and

rolling the elongated planarizing pad upon itself to form a roll.

15. (Currently amended) The method of claim 49, further comprising selecting the planarizing pad material to have a generally circular planform shape.

16. (Currently amended) The method of claim 49 wherein selectively exposing the first portion of the planarizing pad material without exposing the second portion of the planarizing pad material includes positioning a mask proximate to the surface of the planarizing pad material with an opaque region of the mask aligned with the second portion of the planarizing pad material to block the selected radiation from the selected energy source from striking the second portion and an at least partially transmissive region of the mask aligned with the first portion of the planarizing pad material to transmit the selected radiation to the first portion.

17. (Currently amended) The method of claim 4-9, further comprising selecting the planarizing pad material to include a photopolymer.

18. (Currently amended) The method of claim 4-9 wherein exposing the first portion of the planarizing pad material to the selected energy source includes increasing a solubility of the first portion.

19. (Currently amended) The method of claim 4-9 wherein exposing the first portion of the planarizing pad material to the selected energy source includes decreasing a solubility of the first portion.

20. (Cancelled)

21. (Currently amended) The method of claim 4-9, further comprising selecting the planarizing surface material to have a Shore D hardness in the range of from about 50 to about 80.

22. (Currently amended) The method of claim 4-9 wherein the planarizing pad material includes an elongated film having a first end and a second end, further wherein exposing the planarizing pad material to a selected energy source and exposing the planarizing pad material to a solvent are each performed at one or more stations between the first end and the second end in a continuous process as the planarizing pad material moves relative to the one or more stations.

23-27. (Cancelled)

28. (Currently amended) The method of claim 23-9, further comprising curing the planarizing pad material at an elevated temperature to strengthen the front-first surface.

29-49. (Cancelled)

50. (Currently amended) The method of claim 5749, further comprising selecting the abrasive elements from ceria, titania, alumina, and calcium carbonate.

51. (Currently amended) The method of claim 5749, further comprising distributing chalk in the planarizing pad material to uniformly disperse the abrasive elements in the planarizing pad material.

52. (Currently amended) The method of claim 5749, further comprising selecting the planarizing pad material to include a carbonaceous material to control a hardness of the planarizing pad material.

53. (Original) The method of claim 52 wherein selecting the carbonaceous material includes selecting graphite.

54. (Original) The method of claim 52 wherein selecting the carbonaceous material includes selecting an amorphous carbon material.

55. (Currently amended) The method of claim 5749, further comprising:
selecting the planarizing pad material to have a thickness of from about 0.002 inch to about 0.010 inch; and
forming the recesses in the surface of the planarizing pad material to have a depth of from about 0.001 inch to about 0.004 inch measured from the surface of the planarizing pad material.

56. (Cancelled)

57. (Currently amended) A method for forming a fixed-abrasive planarizing pad for planarizing a microelectronic substrate, comprising: ~~The method of claim 49 wherein the surface of the planarizing pad material is a first surface, the planarizing pad material having a second surface opposite the first surface, further comprising:~~

distributing abrasive elements in a radiation-sensitive planarizing pad material;

selectively irradiating a first portion of a first surface of the planarizing pad material with a selected radiation without irradiating a second portion of the first surface of the planarizing pad adjacent to the first portion;

forming a plurality of recesses and contact surfaces at the first surface of the planarizing pad material configured to support a planarizing liquid proximate to the first surface of the planarizing pad material during planarization of the microelectronic substrate by exposing the planarizing pad material to a solvent to remove material from one of the first and second portions of the planarizing pad material at a greater rate than removing material from the other of the first and second portions;

selecting a substrate material to transmit the selected radiation;

attaching the substrate material to the second surface of the planarizing pad material to support the planarizing pad material, the second surface facing opposite from the first surface; and

exposing the second surface to the selected radiation to cure the planarizing pad material to a selected depth beneath the second surface by irradiating the substrate material with the selected radiation and allowing the selected radiation to pass through the substrate material to the second surface of the planarizing pad material.

58. (Currently amended) The method of claim 5749, further comprising curing the planarizing pad material at an elevated temperature to strengthen and harden the planarizing pad material.

59. (Currently amended) The method of claim 5749 wherein the substrate material is a first substrate material, and wherein the method, further comprising comprises:

attaching the planarizing pad material to an elongated second substrate material to form an elongated planarizing pad; and
rolling the elongated planarizing pad upon itself to form a roll.

60. (Currently amended) The method of claim 5749 wherein irradiating the first portion of the planarizing pad material includes increasing a solubility of the first portion.

61-78. (Cancelled)

79. (Currently amended) The planarizing pad of claim 7880, wherein the process further comprises:

selecting the planarizing pad material to have a thickness of from about 0.002 inch to about 0.010 inch; and
forming the recesses in the surface of the planarizing pad material to have a depth of from about 0.001 inch to about 0.004 inch measured from the surface of the planarizing pad material.

80. (Currently amended) A planarizing pad for planarizing a microelectronic substrate, formed by the process comprising: The planarizing pad of claim 78 wherein the surface of the planarizing pad material is a first surface, the planarizing pad material having a second surface opposite the first surface, the process further comprising:

selectively irradiating a first portion of a first surface of a radiation-sensitive planarizing pad material with a selected radiation without irradiating a second portion of the first surface of the planarizing pad material adjacent to the first portion, the planarizing pad material including fixed abrasive elements for abrading the microelectronic substrate;

forming a plurality of recesses and contact elements at the first surface of the planarizing pad material by exposing the planarizing pad material to a solvent to remove

material from one of the first and second portions of the planarizing pad material at a greater rate than removing material from the other of the first and second portions, the recesses being configured to support a planarizing liquid proximate to the first surface of the planarizing pad material during planarization of the microelectronic substrate, the contact elements having engaging portions defining a generally flat plane;

selecting a substrate material to transmit ~~the~~ a selected radiation;

attaching the substrate material to ~~the~~ a second surface of the planarizing pad material to support the planarizing pad material, the second surface facing opposite the first surface; and

exposing the second surface to the selected radiation to cure the planarizing pad material to a selected depth ~~beneath~~ from the second surface by irradiating the substrate material with the selected radiation.

81. (Currently amended) The planarizing pad of claim 7880 wherein the substrate material is a first substrate material, and, wherein the process further comprises:

attaching the planarizing pad material to an elongated second substrate material to form an elongated planarizing pad; and

rolling the elongated planarizing pad upon itself to form a roll.

82. (Currently amended) The planarizing pad of claim 7880, wherein the process further comprises selecting the planarizing pad material to have a generally circular planform shape.

83. (Currently amended) The planarizing pad of claim 7880 wherein irradiating the first portion of the planarizing pad material includes decreasing a solubility of the first portion.

84. (Currently amended) The planarizing pad of claim 7880 wherein the planarizing pad material includes an elongated film having a first end and a second end, further wherein irradiating the planarizing pad material and exposing the planarizing pad material to a solvent are

each performed at one or more stations between the first end and a second end in a continuous process as the planarizing pad material moves relative to the one or more stations.

85-87. (Cancelled)